



Docket-222

**POLICY & PLANNING
BRANCH ROOM 5202**

OFFICE OF
THE CHAIRMAN

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Dear Senator Stevens:

This is in reply to your letter of February 16, 1993, in which you requested additional information regarding the Notice of Proposed Rule Making (Notice) in PR Docket No. 92-235, 57 FR 54034 (1992). Specifically, you are concerned about the potential effect of the proposals for low power private land mobile radio users on radio control model airplane hobbyists.

In brief, we anticipate that these proposals will have no impact on model airplane users. Model airplane users have shared spectrum on a secondary basis with industrial users for over 25 years. The low power industrial user and the radio control model airplane hobbyists effectively share spectrum through geographic separation. We are enclosing the Report and Order in GEN Docket 82-181, 47 FR 51875 (1982), which provided the current 50 channels for ~~radio controlled model airplanes. Until 1982, the only airplane channels were~~

Congressional

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AND REPLY FOR DOCKET FILE, ROOM 222.

CONGRESSIONAL CORRESPONDENCE TRACKING SYSTEM 02/22/93

LETTER REPORT

CONTROL NO.	DATE RECEIVED	DATE OF CORRESP	DATE DUE	DATE DUE OLA(857)
9300744	02/22/93	02/16/93	03/05/93	03/03/93

TITLE	MEMBERS NAME	REPLY FOR SIG OF
Senator	Ted Stevens	JHQ

CONSTITUENT'S NAME	SUBJECT
personal view	inq. comments on PR Docket 92-235

REF TO	REF TO	REF TO	REF TO
PRB/LMR			

2-24-93

DATE	DATE	DATE	DATE
02/22/93			

REMARKS:

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COMMITTEE ON APPROPRIATIONS

WASHINGTON, DC 20510-6025

PRB
92-235
JHQ
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February 16, 1993

The Honorable James H. Quello
Interim Chairman
Federal Communications Commission
1919 M Street, N.W.
Washington, D.C. 20554

Dear Jim:

Recently, I have been contacted by numerous Alaskans who are concerned about the Federal Communications Commission's proposed revisions to the private land mobile radio services (PR Docket #92-235).

My constituents feel that if the proposed rule change is adopted, the usability of frequencies currently assigned for the radio control of model airplanes will be greatly reduced. In addition, they have stated that the risk of accidents involving model aircraft will significantly increase. The potential increase

history file

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D. C. 20554

FCC 82-486
32237

In the Matter of

Amendment of Parts 2, 21, 22, 81, 87, 90)
and 95 of the Commission's Rules to provide)
additional spectrum between 72 and 76 MHz)
for the radio control of model aircraft,)
boats, cars and other similar devices.)

GEN Docket 82-181
RM-3248

REPORT AND ORDER

Adopted: November 4, 1982

Released: November 9, 1982

By the Commission: Commissioner Rivera absent.

Introduction

1. On April 1, 1982 the Commission adopted a Notice of Proposed Rulemaking (Notice 1/) in Docket 82-181 to amend Parts 2, 21, 22, 81, 87, 90 and 95 of the Commission's Rules to provide additional radio channels for the radio control of model aircraft, boats and cars. This Notice was issued in response to a petition (RM-3248) from the Academy of Model Aeronautics Inc.

control of models by licensees in the Radio Control Radio Service 5/. (All operations in this band are subject to the condition that no interference is caused to the reception of signals of television channels 4 and 5.)

5. The Academy initially suggested that R/C be allowed use, on a secondary basis, of ten of the 72-76 MHz channels currently allocated to low power land mobile operations in the Special Industrial, Manufacturers and Railroad Radio Services along with eleven 'guard band' channels separating the Government and non-Government allocations between 30 and 42 MHz. This would have replaced the use of existing R/C service channels and provided for 20-25 additional channels for growth of the service over the next 10 years. The Academy also asked if additional spectrum might be found in the 222-224 MHz, the 450-460 MHz or the 900 MHz bands. The Academy requested channels for exclusive use by aircraft models, because model aircraft have a wider area of operation than surface models and coordination of model control activities among the same kinds of models is easier to achieve.

6. Additionally, the Academy submitted a Report on 72-76 MHz Radio Control Systems, on September 11, 1980, which was amended by a letter in July 1981. The report considered the viability of expanded radio operations on interlaced, 20 kHz channels in the 72-76 MHz band (i.e., 72.01, 72.03, 72.05 MHz, etc.) and the technical parameters of a workable 72-76 MHz assignment plan. The Academy recommended implementation of additional 72-76 MHz frequencies as follows:

- (a) Model aircraft only: fifty 8 kHz channels, starting at 72.01 MHz and proceeding every 20 kHz through 72.99 MHz.
- (b) Terrestrial models only: twenty-three 8 kHz channels, starting at 75.41 MHz and proceeding every 20 kHz through 75.85 MHz.
- (c) Phase out existing seven 72-76 MHz frequencies within five years.
- (d) Permit any type of emission to be used.

7. After the needs of the R/C community were examined, it was proposed in the Notice that eighty new channels be made available for the

5/ "NG56 The frequencies 72.08, 72.16, 72.24, 72.32, 72.40, 72.96, and 75.64 MHz may be authorized for low power (1-watt input) mobile operations in the Personal Radio Services for radio control of models subject to the condition that interference will not be caused to remote control of industrial equipment operating on the same or adjacent frequencies and to the reception of television stations operating on Channels 4 or 5. TV interference shall be considered to occur whenever reception of regularly used television signals is impaired or destroyed, regardless of the strength of the television signals or the distance to the television station."

interference then, Control Chief claims, if the R/C devices are operated close to an industrial plant.

11. In its reply comments the Academy states that the chance of interference to industrial low power devices from R/C devices is negligible. Aircraft models are not flown within several hundred feet of any obstructions, which means that an R/C transmitter would probably be several hundred feet away from any industrial plant containing a radio controlled crane or similar device and would certainly be much further away from the device than the

prevent the possibility of interference problems occurring. No comments were received indicating concern with interference to fixed operations.

19. On the question of interference to low power radio control devices for industrial operations, such as crane operation, it should be noted that the use of these control devices is limited to industrial plant sites. We concur in the Academy analysis that, because model aircraft are not flown near obstructions, there is likely to be substantial distance between R/C transmitters and industrial control receivers. ^{10/} Further, as the Academy noted, much model activity occurs outside of normal business hours. This, along with the 10 kHz frequency offset arising from the channeling plan, means that there is very little probability of harmful interference. ^{11/} We can also substantiate that there have been no reports to the FCC of interference caused by R/C devices operating on existing shared channels at 72 MHz as of the end of 1981.

20. There is also only a very slight potential for harmful interference being caused by model control transmitters to television reception on TV channels 4 (66-72 MHz) or 5 (76-82 MHz). In general, the television signal at a TV receiver would be much higher than a low power R/C transmitter signal. Also, R/C transmitters are usually used in open areas away from houses. Interference to TV from R/C operations using existing 72-76 MHz channels has not been a problem. Consequently, we find no merit to MST's proposal for granting new R/C licenses for only one year to see if interference develops.

21. On the issue of phasing out existing R/C equipment operating on 72.08, 72.16, 72.24, 72.32, 72.40, 72.96 and 75.64 MHz, we believe that the five year period proposed is sufficient. The R/C service is substantially self-policing through the Academy and hobbyist clubs. Because of the possibility of interference, persons using unauthorized frequencies after the five year period may risk damage to their own models as well as to others; thus we do not believe that unauthorized use of the seven frequencies will be a significant problem. Further, we believe that the Academy's planned phase-in of the new frequencies will be sufficient to insure a full, useful life for existing R/C devices and, therefore, no additional FCC rules are needed in this regard.

22. On the question raised in the comments concerning why more channels are to be authorized for aircraft models than surface models, we

^{10/} While control Chief's ex parte comments indicate that interference may be more of a possibility under certain circumstances than the Academy stated in its original comments, we find little merit to most of Control Chief's arguments in this specific case. For example, the distance between the two transmitters is much more important than the relative powers of the two devices (received signal levels are a function of distance-squared) and we do not believe multipath effects would be significant at these frequencies.

^{11/} The Commission has successfully used frequency offsetting, with up to 50% overlap of the authorized bandwidths, elsewhere in the Private Radio Services.

27. For further information regarding this Order, contact James Vorhies (202) 653-9097, or Donald Draper Campbell, (202) 653-8177.

FEDERAL COMMUNICATIONS COMMISSION

William J. Tricarico
Secretary

Further, the following frequencies may be authorized on a primary basis for mobile operations in the Special Industrial Radio Service, Manufacturers Radio Service, and Railroad Radio Service subject to the condition that no interference is caused to the reception of television stations operating on channels 4 and 5; and that their use is limited to a railroad yard, manufacturing plant, or similar industrial facility.

MHz

MHz

MHz

MHz

MHz

G. Part 95 of Chapter I of Title 47 of the Code of Federal Regulations is amended, as follows:

1. Section 95.216 (R/C Rule 16) is amended by revising paragraphs (a) and (b), and adding paragraph (e) to read as follows:

§95.216 (R/C Rule 16) On what channels may I operate?

(a) Your R/C station may transmit only on the following channels (frequencies):

Frequency (MHz)	To operate:
26.995	Any kind of device (any object or apparatus except an R/C transmitter).
27.045	
27.095	
27.145	
27.195	
27.255	
26.995	A model aircraft device (any small imitation of an aircraft).
27.045	
27.095	
27.145	
27.195	
27.255	
72.01	[see paragraph (e)]
72.03	
72.05	
72.07	
72.08	
72.09	
72.11	[see paragraph (e)]
72.13	
72.15	
72.16	
72.17	
72.19	
72.21	[see paragraph (e)]
72.23	
72.24	
72.25	
72.27	
72.29	
72.31	[see paragraph (e)]
72.32	
72.33	
72.35	
72.37	
72.39	
72.40	[see paragraph (e)]
72.41	

(b) * * *

(c) * * *

(d) Radio remote control of models is permitted on frequencies 10 kHz removed from these frequencies authorized for fixed and mobile operations in the 72-76 MHz band. Radio remote control operations are secondary to operation of fixed and mobile stations as provided for in this section.

+ + + + +

E. Part 87 of Chapter I of Title 47 of the Code of Federal Regulations is amended, as follows:

1. Section 87.463 is amended by revising paragraph (a) and adding paragraph (b) to read as follows:

§87.463 Frequencies available to fixed stations.

(a) The frequencies listed in this paragraph may be assigned under the conditions set forth in subparagraph (1) through (6) of this paragraph. These frequencies are available on a shared basis with the Land Mobile and Stations on Land in the Maritime Radio Services. (Stations authorized to operate in the band 73-74.6 MHz as of December 1, 1961, may continue to operate in this band and are not required to afford protection to the radio astronomy service.)

MHz	MHz	MHz	MHz
72.02	72.36	72.80	75.66
72.04	72.38	72.82	75.68
72.06	72.40 <u>1/</u>	72.84	75.70
72.08 <u>1/</u>	72.42 <u>1/</u>	72.86	75.72
72.10	72.46	72.88	75.74
72.12	72.50	72.90	75.76
72.14	72.54	72.92	75.78
72.16 <u>1/</u>	72.58	72.94	75.80
72.18	72.62	72.96 <u>1/</u>	75.82
72.20	72.64	72.98	75.84
72.22	72.66	75.42	75.86
72.24 <u>1/</u>	72.68	75.46	75.88
72.26	72.70	75.50	75.90
72.28	72.72	75.54	75.92
72.30	72.74	75.58	75.94
72.32 <u>1/</u>	72.76	75.62	75.96
72.34	72.78	75.64 <u>1/</u>	75.98

1/ These frequencies are shared, on a secondary basis, by the Radio Control Radio Service until [5 years after the effective date of the rule change].

(b) Mobile radio remote control of models may be found operating on frequencies 10 kHz removed from these frequencies authorized for fixed and mobile operations in the 72-76 MHz band. Such use by the mobile radio remote

75.65
75.67
75.69
75.71
75.73
75.75
75.77
75.79
75.81
75.83
75.85
75.87
75.89
75.91
75.93
75.95
75.97
75.99

* * * * *

- (d) Your R/C station must stop transmitting if it interferes with:
- (1) Authorized radio operations in the 72-76 MHz band; OR
 - (2) Television reception on TV channels 4 or 5.
- (e) Authorization for the use of the following frequencies is withdrawn effective [5 years after the effective date of the rule change]: 72.08, 72.16, 72.24, 72.32, 72.40, 72.96 and 75.64 MHz

§ 95.617 Emission limitations

(a) * * *

(b) The authorized emission bandwidth of any transmitter:

- (1) In the Radio Control Service shall be 8 kHz unless single sideband modulation is used in which case bandwidth shall be 4 kHz;
- (2) In the Citizens Radio Service, employing amplitude modulation, shall be 8 kHz for double sideband and 4 kHz for single sideband;
- (3) In the General Mobile Radio Service, employing frequency modulation or phase modulation shall be 20 kHz.